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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/779,899

02/17/2004

Vincent P. Drnevich

13054-215A

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32841

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02/03/2005

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SUITE 510
INDIANAPOLIS, IN 46204

EXAMINER

BELLAMY, TAMIKO D

ART UNIT

PAPER NUMBER

2856

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/779,899

Applicant(s)

DRNEVICH ET AL.

Examiner

Tamiko D. Bellamy

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2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 13, 19, 25 and 29 is/are rejected.
- 7) ☒ Claim(s) 6-12, 14-18, 20-24, 26-28, 30 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 13, 19, and 25, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siddiqui et al. (6,215,317 B1) in view of White et al. (5,136,249).

Re to claims 1, 25, and 29, Siddiqui et al. discloses a plurality of spikes (72) driven into the soil in spaced apart relationship Siddiqui et al. also discloses applying a electrical signal to the spikes (72) for time domain reflectometry. Siddiqui et al. discloses determining the dielectric constant of the soil (col.5, lines 30-45, see equations #3, and #4). Siddiqui et al. discloses calculating the dry density of the soil and the gravimetric water content of the soil (col. 5, lines 46-60; col. 10, equation 14). Siddiqui et al does not specifically disclose determining the bulk electrical conductivity of the soil. White discloses determining the bulk electrical conductivity of the soil. (col. 6, lines 59-68; col. 8, lines 43-68) Therefore, to modify Siddiqui et al. by employing determining the bulk electrical conductivity of the soil would have been obvious to one of ordinary skill in the art at the time of the invention since White et al. teaches a probe device for measuring moisture content having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Siddiqui et al. and White et al. since White et al.

states that his invention is applicable to measuring soil density and moisture content using the time domain reflectometry (TDR) and White et al. is directed to measuring moisture content of soil using TDR.

Re to claim 2, Siddiqui et al. discloses determining an apparent length (see col. 5, equation 4).

Re to claim 3, Siddiqui et al discloses determining an apparent dielectric constant (K) (see col. 5, equation 4.

Re to claim 4, Siddiqui et al discloses measuring a source voltage of the applied signal and a long-term voltage of the reflected signal (col. 5, lines 19-32).

Re to claim 5, Siddiqui et al. includes all of the claimed invention except for determining the bulk electrical conductivity where C is a probe constant related to the probe length L_p . As depicted in equation 5a (see col. 7, lines 60-65), White et al. discloses bulk electrical conductivity where (L) is a constant related to the probe that is equivalent to the probe constant C related to the probe length L_p . Therefore, to modify Siddiqui et al. by employing determining the bulk electrical conductivity would have been obvious to one of ordinary skill in the art at the time of the invention since White et al. teaches a probe device for measuring moisture content having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Siddiqui et al. and White et al. since White et al. states that his invention is applicable to measuring soil density and moisture content using the time domain reflectometry (TDR) and White et al. is directed to measuring moisture content of soil using TDR.

Re to claims 13 and 19, Siddiqui et al. discloses a plurality of spikes (72) driven

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into the soil in spaced apart relationship Siddiqui et al. also discloses applying a electrical signal to the spikes (72) for time domain reflectometry. Siddiqui et al. discloses determining the dielectric constant of the soil (col. 5, lines 30-45, see equations #3, and #4). Siddiqui et al. discloses calculating the dry density of the soil (cl. 13) and the gravimetric water content of the soil (cl. 19)(col. 5, lines 46-60; col. 10, equation 14). Siddiqui et al does not specifically disclose determining the bulk electrical conductivity of the soil. White discloses determining the bulk electrical conductivity of the soil. (col. 6, lines 59-68; col. 8, lines 43-68) Therefore, to modify Siddiqui et al. by employing determining the bulk electrical conductivity of the soil would have been obvious to one of ordinary skill in the art at the time of the invention since White et al. teaches a probe device for measuring moisture content having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Siddiqui et al. and White et al. since White et al. states that his invention is applicable to measuring soil density and moisture content using the time domain reflectometry (TDR) and White et al. is directed to measuring moisture content of soil using TDR.

Allowable Subject Matter

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3. Claims 6-12, 14-18, and 20-24, 26-28, 30, and 31, are objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamiko D. Bellamy whose telephone number is (571) 272-2190. The examiner can normally be reached on Monday - Friday 6:30 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tamiko Bellamy
T.B.
January 27, 2005


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800